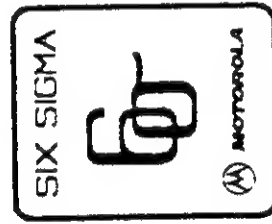




MCU DIVISION



QUARTER 1, 1988

## EVALUATION MODULES/BOARDS

Evaluation Modules/Boards	Device Supported											
	MC6801	MC68014	MC6801	MC68014	MC68014	MC68014	MC68014	MC68014	MC68014	MC68014	MC68014	MC68014
M68701EVM	/	/	/	/	/	/	/	/	/	/	/	/
M68705EVM	/	/	/	/	/	/	/	/	/	/	/	/
M6811C04EVM	/	/	/	/	/	/	/	/	/	/	/	/
M68HC05EVM	/	/	/	/	/	/	/	/	/	/	/	/
M68HC11EVM	/	/	/	/	/	/	/	/	/	/	/	/
M68HC39EVM	/	/	/	/	/	/	/	/	/	/	/	/
M68HC11EVB	/	/	/	/	/	/	/	/	/	/	/	/
MEX68KECB	/	/	/	/	/	/	/	/	/	/	/	/

## SYSTEM MODULES AND DEVELOPMENT STATIONS

DSP56000ADS Application Development System
HDS-200 Hardware/Software Development Station
HDS-300 Hardware/Software Development Station*

\* A stand alone emulator system that provides state of the art, high speed emulation support for the MC6809, MC6819E, and the complete M6811/M6811C11 Family.

## MOTOROLA 8 BIT MPU/PERIPHERAL GUIDE

Device	Pins	Package	Part Description
MC6800	40	P, S	8 Bit MPU Addresses 64K Memory, 1 or 2 MHz Versions
MC6802	40	P, S	MC6800 + Int. Clock Oscillator; 128 Bytes RAM
MC6809	40	P, S	High Performance MPU, 10 Powerful Addressing Modes
MC6809E	40	P, S	MC6809 With External Clock Input For External Sync
MC6810	24	P, S	128 x 8 Static RAM, 6 Chip Select
MC6821	40	P, S	Peripheral Interface Adaptor
MC6840	28	P, S	Programmable Timer Module Contains 3 16-Bit Timers
MC6844	40	P, S	Direct Memory Access Controller, 4 DMA Channels
MC6845	40	P, S	CR1 Ctrl. Refresh Memory Addressing; 2nd Source HD6945R
MC6847	40	P, S	Video Display Generator, Multi Display
MC6850	24	P, S	Asynchronous Communication Interface Adapter
MC6852	24	P, S	Synchronous Serial Interface Adaptor
MC6854	28	P, S	Advanced Data Link Controller
MC6859	28	P, S	Data Security; Nat Bureau of Std Algorithm
MC68488	40	P, S	Interface Adaptor, Operates to IEEE 488 Standard
MC68HC24	40	P, FN	MC68HC11 Port Replacement Expanded Model
MC68HC34	40	P, S, FN	256 Bytes Dual Port RAM, 6 Semaphore Registers
MC146818	24	P, S	Real Time Clock, 50 Bytes RAM, Programmable Square Wave
MC146818A	24	P, S, FN	Enhanced Version of the MC146818
MC146823	40	P, S, FN	Three 8 Bit Ports, Handshake Control Logic

# MICROCONTROLLER-SELECTION GUIDE

## M68HC11

	HCMOS									
	A0	A1	A8	E1	E9	811A2	H1C98	HC11D3		
ROM	0	0	8192	0	12K	0	12K	4K		
RAM	256	256	256	512	512	256	256	128		
EEPROM	0	512	512	512	512	2K	0	0		
Timer	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit		
SPI	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		
SCI	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		
Input Capture	3	3	3	4	4	3	1	2		
Output Comparators	5	5	5	4	4	5	1	3		
A/D Converter	Yes	Yes	Yes	Yes	Yes	Yes	No	No		
Real Time Interrupt	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		
Watchdog	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		
Package	52 FN 40 P	52 FN 48 P	52 FN 48 P	52 FN Only	52 FN Only	52 FN 48 P	52 FN Only	52 FN 40 P		
Special Features			Port Replacement Unit IIC 24	EEPROM Black Protect	EEPROM Black Protect		Buffer Chip 6848			
I/O	9	38	38			38				
Bus Speed MHz	0.2	0.2	0.2			0.2				

## M68HC05

	HCMOS									
	C2	C3	C4	C8	A6	B4	B6	M4		
ROM	2K	2K	4K	8K	4181	4K	6K	4K		
RAM	176	176	176	176	176	176	176	128		
EEPROM	0	0	0	0	2096	0	256	0		
Timer	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit		
SPI	No	Yes	Yes	Yes	Yes	No	No	No		
SCI	No	Yes	Yes	Yes	Yes	Yes	Yes	No		
A/D	No	No	No	No	No	Yes	Yes	Yes		
I/O	24	24	24	24	24	32	32	32		
Document	AD91R2	AD91R2	AD951R2	AD951R2	Appendix E	AD11256	AD11256	AD11254		
Package	40 P	40 P	40 P	40 P	40 P	52 FN	52 FN	52 FN		
Special Features	Only	Only	Low Voltage & High Speed	Low Voltage & High Speed	Self Check Stop & Wait	PWM D/A Timers	PWM D/A Timers	24 Lines (3 Ports) VFD on Chip		
EEPROM or EEPROM Version			MC68HC85C4	MC68HC85C4	MC68HC85C4	MC68HC85C4	MC68HC85C4	MC68HC85C4		
Bus Speed MHz	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		

\* Fine pitch

## M6804/M68HC04

	HMOS				HCMOS			
	J1	J2	P2	J3	P3	J3	P3	P3
ROM	504	1000	1024	1672	1698			
RAM	32	32	32	174	174			
Timer	8 Bit	8 Bit	8 Bit	8 Bit	8 Bit			
I/O	12	12	20	12	20			
EEPROM Version			704P2					
Bus Speed MHz	83.229	83.229	83.229	0.450	0.450			
Package	20 P	20 P	28 P	20 P	28 P			

## M6805

	HMOS									
	R2	R3	S2	S3	U2	U3	P2	P6		
Use ROM (bytes)	2048	3776	1000	3720	2048	3776	1110	1814		
RAM	64	112	64	104	54	112	54	64		
SPI	No	No	Yes	Yes	No	No	No	No		
A/D	Yes	Yes	Yes	Yes	No	No	No	No		
I/O Bidirectional	24	24	21	14	24	24	24	24		
I/O Unidirectional	8	8	7	7	8	8	8	8		
Plus	40	40	28	28	40	40	28	28		
EEPROM Version	705P3	705P3	705P3	705P3	705P3	705P3	705P3	705P3		
Timer	8 Bit	8 Bit	8 Bit	8 Bit	8 Bit	8 Bit	8 Bit	8 Bit		
Bus Speed MHz	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110		
Package	40 P S	44 FN	28 P S	28 P S	40 P S	44 FN	28 P S	28 P S		

## M6801

	HMOS				HCMOS			
	MC6801	MC6803	MC6801U4	MC6803U4	MC6801U4	MC6803U4	MC6801U4	MC6803U4
RAM	128	128	128	128	128	128	128	128
Standby RAM	64	64	64	64	64	64	64	64
ROM	256	0	0	0	0	0	0	0
EEPROM	0	0	0	0	0	0	0	0
Timer	15 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit	16 Bit
Input Capture Functions	1	1	1	1	1	1	1	1
Output Compare Functions	1	1	1	1	1	1	1	1
Serial Communications	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Serial Peripheral Interface	No	No	No	No	No	No	No	No
A/D Converter	No	No	No	No	No	No	No	No
Real Time Interrupt	No	No	No	No	No	No	No	No
Watchdog System	No	No	No	No	No	No	No	No
Parallel I/O	29	13	13	29	29	29	29	29
EEPROM	MC6801	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bus Speed MHz	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520
Package	40 P S	40 P S	40 P S	40 P S	40 P S	40 P S	40 P S	40 P S

Definitions:

## MCU NEW PRODUCTS

Part	Description	ROM*	RAM	Pins	Prod.	Pkg. Style	Documentation	Competition
<b>M6804 Family:</b> MC68HC704P4 MC68HC04J3	HCMOS MC6804 OTPROM 20 Pin Version of MC68HC04P3	4K E 2K	156 124	28 20	4Q88 3Q88	P P	Contact factory ADI1268	COPS 421C
<b>M68HC05 Family:</b> MC68HC805C4 MC68HC05C9 MC68HC05A6 MC68HC05B4 MC68HC05B6 MC68HC805B6 MC68HC05L6 MC68HC05M4 MC68HC705C8 MC68HC705C4	EEPROM Version of MC68HC05C4 HCMOS MC68HC05C4 with 16K ROM MC68HC05C4 Plus 2K EEPROM MC68HC05C4 W/8 Channel A/D, 2 Channel PWM MC68HC05B4 W/More ROM, 256 EEPROM EEPROM Version of MC68HC05B6 MC68HC05C4 with 96 Segment LCD Drive MC68HC05C4 with High Voltage VF Drive HCMOS MC6805 OTPROM HCMOS MC6805 OTPROM	4K EE 16K 4K 4K 6K 6K EE 6K 4K 8K E 4K E	176 352 176 176 176 176 176 128 304 176	44/40 40 44/40 52 52 52 68 52 44/40 44/40	Now 4Q88 2Q88 1989 4Q88 2Q88 Now 3Q88 4Q88 1989	FN, P FN, P FN, P FN FN FN DIE FN FN, P FN, P	ADI991R2 NDA NDA ADI1296 ADI1296 ADI1296 ADI1254 NDA ADI991R2 ADI991R2	187C51 HD65901 Siemens 80515 Siemens 80515 Siemens 80515 HD63L05F1, NEC 7503 HD63705VOP HD63705VOP
<b>M68HC11 Family:</b> MC68HC11E9 MC68HC11E1 MC68HC811A2 MC68HC711D3	MC68HC11A8 with More ROM, More RAM Bytes, Four Timer Input Captures MC68HC11E9 Without ROM MC68HC11A1 Plus 2K EEPROM HCMOS MC68HC11 OTPROM	12K/ 512 EE 512 EE 2K EE 4K E	512 512 512 256 192	52 52 52/48 40/44	3Q88 3Q88 Now 1989	FN FN FN, P FN, P	NP438 NP438 BR289 Contact factory	18396  HD69501 HD63701VOP
<b>Other:</b> MC68HC16 MC68HC99 (Rev) MC6898	16 Bit MCU Hard Disc Controller Bus Driver Chip for MC68HC99	— 12K —	— 256 —	— 52 40	— 2Q88 2Q88	— FN FN	NDA NP435 NP435	National 320 16/32 Adaptec AIC 100 (3 Chip Solution) M79018DX-15

\* E = EPROM or OTPROM

EE = EEPROM